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Border Power Plant Working Group	***Grupo de Trabajo de Termoeléctricas Fronterizas***
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November 26, 2002

Executive Director Irene Stillings
San Diego Regional Energy Office
8520 Tech Way, Suite 110
San Diego, CA 92123

Subject: Border Power Plant Working Group's Comments on Draft San Diego Regional Energy Infrastructure Study

Dear Irene:

Thank you for this opportunity to comment on the draft San Diego *Regional Energy Infrastructure Study* (REIS). I am commenting in my capacity as Chair of the Border Power Plant Working Group (BPPWG). The BPPWG is a binational non-profit organization dedicated to promoting the use of environmentally-sustainable design elements in energy facilities built in the border region. The primary focus of the BPPWG is the California – Baja California border. The draft REIS is an encouraging starting point for serious discussions on the energy future of the region. My recommendations and supporting comments are provided below.

<u>Recommendation 1</u>. Address in Detail Options to Current Market Model That Would Enhance Regional Energy Security

The BPPWG is in agreement with the REIS assertion that the construction of in-county replacement facilities for South Bay and Encina is a top regional priority. The draft REIS stresses concern that South Bay and Encina may not be repowered in the foreseeable future due to a soft electricity market, the current poor financial state of private power project developers, and the relatively undesirable location of these facilities from a market standpoint. This uncertainty creates a form of domino effect in other parts of the draft REIS. The need for additional transmission assets is justified in part due to uncertainty over the future of South Bay and Encina, even though the report clearly states that *". . . on an equivalent capacity cost basis, new transmission is more costly than generation"* (pg. 4-12).

Relying heavily on electricity imports to meet most or all of our capacity needs is inherently less reliable than local generation and leaves the region more susceptible to deliberate disruption (i.e. sabotage). In addition, the consumer pays for the very expensive transmission line additions and

Commission (CEC) estimates that 5 to 9 percent of all electricity produced in California is lost on transmission lines before doing any useful work. The California consumer pays for these system efficiency losses as well. From an energy efficiency and infrastructure security standpoint it is far more appropriate to build new power plants close to the users than to promote a highly distorted form of "competition" that requires huge investments in long transmission infrastructure and huge energy losses on these long transmission lines which the "competitors" do not pay for.

As noted in the draft REIS, the California Independent System Operator (CAISO) was considering whether to conduct a competitive bid for "non-wire" (local power plant) alternatives to Valley Rainbow and abandoned the idea, reasoning (pg. 4-16):

"Pitting generation against transmission challenged the notion of facilitating a competitive market. Staff felt that "while there certainly may be a place for "competition" between generation and transmission projects at a local level . . . any tangible short-term benefit resulting from a generation project deferring or displacing a larger regional transmission project is likely to be outweighed by the less tangible costs of reduced access and therefore less competition. Moreover, reliance on a "market" generation to displace the need for critical regional transmission facilities will inevitably give rise to market power problems and the need to "renegotiate" a deal with such generation on a long-term basis."

I would characterize the CAISO perspective described in the previous paragraph as naive, especially in the "post Enron" world. Private power companies can clearly exercise market power regardless of how much transmission capacity is available, as demonstrated during the 2000-2001 debacle in California. It is unlikely that any power plant developer will build a plant in California for the foreseeable future without having a signed 10- to 15-year power contract in hand. The market risk is too great without the long-term contract. Discouraging local generation asset construction to promote "competition" in an economic environment where power developers must have long-term contracts to build is illogical. Customers will negotiate the best terms before the plant is built and then live with them for a long period of time.

Local generation assets to replace Encina and South Bay must be built, and they must be built in a timely fashion. Given the chaos in the capital markets at this time, and the dire financial straights of Duke Energy, Dynegy, and NRG, it is highly unlikely Encina or South Bay will be repowered by the current private owners in the foreseeable future. If the private market will not get these plants built when they are needed, then the region will have to find a solution outside of the current market structure. A regional "municipal" utility is probably the best solution to ensure that: 1) these plants get built and 2) we enhance our energy security by retaining local control over a major percentage of our local energy needs. Forming a joint power authority that has the authority to negotiate long-term power contracts with developers who will build, own, and operate replacement projects at Encina and South Bay based on these contracts is a second option. For example, the Imperial Irrigation District (IID) recently signed a 20-year power contract with CalEnergy so the company would have sufficient financial incentive to build the 185 MW Salton Sea No. 6 geothermal power plant. This market mechanism should be fully explored in the final REIS, and local public entities that could serve the role IID is playing in the

The stated reason that IID signed the contract is long-term energy security at reasonable rates. The Salton Sea No. 6 geothermal project and IID's rationale for making the project happen would make an excellent case study. Such a case study would potentially offer insight into viable alternative models for ensuring energy security and energy price stability in the San Diego market over the long term.

<u>Recommendation 2</u>. Include Detailed Analysis of the Potential of Geothermal Assets in Salton Sea Area to Meet Energy Growth Needs

Salton Sea No. 6 will be the first geothermal plant built in California in a generation. CalEnergy estimates there is approximately 2,000 MW of untapped geothermal potential in the immediate area around the Salton Sea. The large-scale development of geothermal assets in the region must be looked at in detail in the final REIS.

<u>Recommendation 3</u>. Define Appropriate Environmental Standards for New Power Plants in the Region

The statement is made on pg. 2-21 of the draft REIS that ". . . *There appears to be excessive regulation affecting power plant development in the state* . . ." implying that this excessive regulation is slowing project starts. In actuality, the California Energy Commission (CEC) has a relatively streamlined 12-month permit review process for power plant applications. The real problem has been project developers attempting to force through projects with outdated, non-sustainable design elements such as wet cooling, then encountering extensive permitting delays due to citizen protests and legal actions. Smart project design that incorporates common sense, proven sustainable development components such as dry cooling will go a long way toward minimizing or eliminating new power project permitting delays. Developers who propose environmentally sustainable plants get their permits from the CEC in a timely fashion.

The Otay Mesa Power Project is an excellent example of how to do it right in San Diego County and California. Otay Mesa Power Project was the first baseload utility power project permitted in San Diego in thirty years when the permit was granted in 2001. This merchant project incorporates state-of-the-art catalytic control systems for NO_x and CO, dry cooling to eliminate virtually all water demand by the plant, and zero liquid discharge systems to eliminate wastewater discharge. Clearly Calpine considers the economics of including these design elements in a merchant power project, that will compete in a deregulated power market, to be acceptable. In addition, the project is located only a few miles from the City of San Diego and will require relatively little new transmission infrastructure. Transmission line losses (to San Diego) will be negligible due to the project's proximity to the point of use. The temperate, near-coastal location means a relatively economical air cooled-condenser, one that imposes a minimal fuel efficiency penalty, can be used at the project site.

The Otay Mesa Project should be the template upon which all future combined-cycle projects in the region are modeled. Unfortunately this is not the case. The Palomar Energy Project, a 550 MW project proposed by Sempra Energy for Escondido, is proposed as a wet-cooled plant using [illegible] water for cooling instead of a dry cooling system. Cooling water demand will be [illegible]

built in part using U.S. Bureau of Reclamation grant funds and State Water Resources Control Board low interest loans. The single simple objective of this funding is to produce reclaimed water for uses that displace Colorado River water imports. State water policy prohibits the use of potable water as the cooling medium at Palomar. For this reason, using reclaimed water for cooling at Palomar will not displace one gallon of imported Colorado River water. There are a number of other promising "Colorado River water displacement" reclaimed water uses that will either be delayed or permanently derailed as a result of the diversion of 3.6×10^6 gallons per day to the Palomar Energy Project.

The Escondido site is an ideal site for dry cooling. It is poor public policy for new power plants that have an economically viable dry cooling option to co-opt precious fresh water resources in this region simply because there is no explicit prohibition against this practice. The final REIS should be explicit in stating that new power plants constructed locally should follow the outstanding environmental sustainability precedent set by the Otay Mesa Project.

Air pollution, water depletion, and cooling tower brine discharge issues surrounding the two U.S.-owned power plants currently in the final phases of construction in Mexicali have led to a lawsuit against the U.S. Department of Energy for issuing Presidential Permits to these plants. These Presidential Permits are necessary to export power from the plants to the U.S. Had these plants been designed following the precedent established by the Otay Mesa Power Project, the regional environmental community would have embraced these plants as models of environmental sustainability. A description in the final REIS of the design characteristics of an environmentally sustainable fossil fuel-fired power plant, which could simply be identified as the Otay Mesa Power Project model, would go a long way toward minimizing friction between power project developers, environmental groups, and local communities as new projects are proposed.

Recommendation 4. Define the Most Physically Secure Transmission Line: Overhead or Underground?

What is the most physically secure approach to constructing the new transmission infrastructure that is needed, underground or overhead, given that even locally constructed power plants will have some length of associated transmission? SDGE apparently has the highest percentage of underground transmission lines of any utility in the state, and as a result is very familiar with undergrounding transmission lines. Common sense would indicate that it would be much easier to inflict major physical damage on an overhead transmission line than an underground line in a case of deliberate sabotage. Common sense would also indicate that repair of a damaged underground line could probably be carried-out much more quickly, as replacement of damaged transmission towers would not be necessary. The final REIS needs to include an analysis of the vulnerabilities of overhead and underground transmission line options and recommend the most physically secure option for future transmission lines constructed in the region.

Recommendation 5. Corroborate That Mexicali Power Plants Must Export 1,060 MW to SDGE Grid

Arizona for the forseeable future. These two Mexicali plants will continue to supply up to 1,060 MW to the U.S. for the forseeable future, unless Mexico takes the major step of a constitutional amendment to allow these private plants to sell to the grid in Mexico. Valley Rainbow or a similar interconnect would decrease the energy security we now have given the Mexicali plants are currently constrained to provide their power output to the SDGE grid. The draft report essentially ignores the 1,060 MW contribution of the two Mexicali plants, implying that little of the power output from these plants will be available for U.S. use (pg. 4-10). That is incorrect. 1,060 MW, two-thirds of total production capacity, is exclusively for U.S. export and will go directly to the SDGE grid. The apparently unintended consequence of siting two plants in Mexicali that must export to the SDGE grid without the Valley-Rainbow interconnect is that it provides the San Diego region with significantly enhanced energy security. This situation would probably put SDGE in an excellent position to negotiate a very favorable long-term contract with Sempra Energy for power produced by Sempra's Mexicali plant if SDGE was not owned by Sempra.

The capacity of the transmission link between Imperial County and Mexicali is 800 MW as stated on pg. 4-10, although the 1,060 MW of export power from the two new power plants in Mexicali is not imported to the U.S. along this 800 MW transmission link. Each company built separate, new transmission lines from the plant sites in Mexicali to the nearest SDGE substation in Imperial County. There are no transmission constraints to moving the 1,060 MW of export power from the two Mexicali plants to the SDGE grid. There are no transmission links between the generators producing this power and the Mexican grid. All output must go into the SDGE grid for use or re-export.

<u>Recommendation 6</u>. Discuss How SDGE Will Meet 20 Percent Renewables Portfolio Requirement and What Impact the Renewables Requirement Will Have on New Fossil Fuel Power Plant Construction and LNG Import Demand in the Region

A much more in-depth discussion of how SDGE will meet the 20 percent renewables requirement recently passed by the state legislature, SB 1078, must be included in the final document. It would appear that a good portion of the regional electricity demand growth over the next 10 to 15 years will have to be met with renewable power resources. What resources will be developed? How will this requirement for 20 percent renewables impact the need to develop new power plants and LNG import facilities in Baja California? SDGE has publicized a renewables plan that is apparently more ambitious than the SB 1078 schedule. The proposed SDGE renewables plan should be included as an appendix to the final REIS document.

Baja California currently produces approximately 40 percent of its total MW production capacity at the 700 MW Cerro Prieto Geothermal Plant just south of Mexicali, Mexico. SDGE has imported large amounts of electricity from this plant is the past, though imports have declined considerably due to demand growth in Mexicali. There exists the possibility that SDGE could meet its renewables requirement under SB 1078 by importing electricity from the Cerro Prieto Geothermal Plant. Sempra Energy's new "U.S. export only" 600 MW plant in Mexicali, which [illegible]

language of SB 1078 effectively precludes the use of this type of "bait and switch" renewables procurement approach. The final REIS needs to propose mechanisms to ensure that SDGE meets both the intent and the letter of SB 1078 if the language of SB 1078 is not explicit on this point.

Recommendation 7. Discuss Potential Impact of Baja California LNG Plants on Regional Energy Security and Industrialization

The statement is made at the foot of pg. 3-7 that final natural gas delivery into the SDGE system is dependent on a single SoCalGas pipeline, and that this situation gives market power to SoCalGas and places the San Diego region in a tenuous position with regard to its natural gas supply. SoCalGas and SDGE are both owned by Sempra Energy. Sempra has built the Baja Norte Pipeline, though this pipeline draws gas from the same gas input going to the SoCalGas pipeline. There is no change in the market power situation given Sempra owns all pipelines into San Diego. The construction of LNG supply terminals in Baja California will not change this situation. Sempra will continue to control the flow of gas into the region, and will have an enhanced ability to exercise market power over the price charged for the gas if the company builds (as proposed) one of the LNG terminals. Flooding the region with natural gas from LNG terminals in Baja will not necessarily have much impact on price or availability if market power is exercised. A potential answer to this dilemma in San Diego is to work to expand the authority of the CPUC to set and enforce "fair and reasonable" natual gas prices in San Diego. Another option, or parallel path, is to lobby for a greatly strengthened FERC enforcement role that ensures only "fair and reasonable" natural gas prices may be charged whether one company or ten companies are competing in a given U.S. natural gas market.

Flooding the region with natural gas from LNG terminals in Baja will provide a major incentive to site energy intensive heavy industries along the California – Baja California border. This will potentially create a "chicken or the egg" situation with respect to energy supply. We flood the region with natural gas, motivating the LNG importers to promote energy intensive industrial development in the region, then see a spiraling increase in gas demand as more energy intensive industries and the associated workforces establish themselves in the region. Confronting the LNG import terminal issue honestly forces us to ask a fundamental question – What is the future we envision for the North Baja coastal region? Bakersfield by the sea? Steel making capital of North America? Or is now the time to move more quickly to transition from fossil fuels by aggressively developing wind, solar, and geothermal resources in the region?

The San Diego region will demonstrate conclusively, if we become dependent on LNG imports to any significant extent, that we have learned nothing from the obvious national security dangers we have experienced as a result of our reliance on fickle foreign partners to keep the fossil fuel supply coming. Especially in light of 9-11, it is clearly poor strategic policy to become dependent on a LNG supply line originating in some of the most unstable countries in the world when we have economically viable options in our own backyard.

Recommendation 8. Get Involved in Existing Binational Air Quality and Energy Facility Process

through a formal binational mechanism. The La Paz Environmental Agreement of 1983, signed by President Reagan of the U.S. and President de la Madrid of Mexico, established a formal binational structure for dealing with cross-border environmental issues. High level federal delegates from both the U.S. and Mexico meet on a regular schedule, generally every six months, to discuss issues of concern related to air quality, water/wastewater, and solid/hazardous waste. The Bush and Fox Administrations are currently finalizing the "Border 2012 Program," based on the framework established in the La Paz Agreement.

In the context of the Border 2012 framework, EPA Administrator Christie Whitman unveiled on November 26, 2002 a new *Air Quality Strategy* developed by the United States and Mexico to take enhanced cooperative action to address transboundary air pollution along the U.S.-Mexico border. The following paragraph is an excerpt from the press release:

"*The agreement will serve as a foundation for dramatically improving the public health and air quality on both sides of our border and also for contributing to our economies in the region.*" said Whitman. The *Strategy* is designed to help federal and local officials improve border air quality by working together to protect public health while promoting economic growth. The *Strategy* will help improve exchange of information, and encourage coordinated planning, management and innovation. Increases in population and industrial growth have affected urban and regional air quality along the U.S.-Mexico border. While substantial efforts have been made to protect border air quality, the two governments will strive to further address remaining significant environmental challenges on the border.

San Diego needs to get fully engaged in the Border 2012 process, not go out and form an independent and competing forum. The effort will fail. The Binational Air Quality Alliance, ostensibly formed to conceive and promote binational solutions to air quality issues affecting the San Diego – Tijuana area, has produced nothing after more than three years of existence. Twenty years of effort has gone into the La Paz Agreement process. This process is just beginning to realize its potential as an effective vehicle for addressing border environmental issues. San Diego needs to be at the table. The most efficient and effective way for San Diego to have a hand in developing solutions to California – Baja California border environmental issues, especially those dealing with energy facilities, is to embrace the Border 2012 process and make San Diego's voice heard in the one functioning binational forum that is capable of achieving results.

Recommendation 9. Revise Discussion in Section 2.4.2 on Water Availability and Power Plants

Either provide much more supporting detail for the first sentence of this section, *"Power plants utilize less than one percent of the state's water consumed,"* or delete this sentence. What is the citation for this statement? Approximately 5,000 MW of new power plants will come online between 2002 and 2005 in the Central Valley, San Bernardino County, and Riverside County that use either fresh surface water or potable groundwater. Four of these plants will be located in western Kern County and will heavily deplete very limited local water supplies. Another will pump groundwater near the desert city of Blythe, while another near Victorville will use a mix of

if not the letter of State Water Resources Control Board Policy 75-58 (1975) specifically intended to protect inland freshwater resources from power plant use. Nevada, in contrast, requires power plant developers to use dry cooling to preserve remaining water resources for other uses. Dry cooling is a core element of an environmentally sustainable fossil fuel power plant. San Diego should take a lead role in demanding that only environmentally sustainable combined-cycle plants are built in the region.

Recommendation 10. Correct Encina Power Plant Discussion Relative to Selective Catalytic Reduction

The statement is made at the bottom of pg. 4-11 that if the Encina Power Plant (owned by Cabrillo Power) is repowered the plant would most likely be equipped with selective catalytic reduction (SCR) for nitrogen oxide (NO_x) control. This statement implies that NO_x control at Encina will dramatically improve if a repower takes place. Some improvement will likely occur, although it is important to note that three of the five boilers at Encina are currently equipped with SCR, and the remaining two boilers will be equipped with SCR by the summer of 2003.

Recommendation 11. Correct or Delete Table 6-9: Cost of Combined-Cycle Plant in California

Table 6-9 shows an installed cost of $850/kw for a new combined-cycle power plant in California compared to $650/kw for non-California sites. This information is either old or wrong or both. Sempra Energy is proposing to build a 550 MW plant in Escondido and has indicated the installed cost of this project will be approximately $500/kw. I am not aware of more onerous environmental requirements for utility-scale plants in California compared to plants built in Arizona, New Mexico, Nevada or Oregon. All of these states require advanced catalytic control systems for air emissions control. Nevada requires dry cooling, whereas California does not. A $200/kw differential between California and non-California plants represents a $100,000,000 differential for a 500 MW plant. This is incorrect information, and would lead the reader to the false conclusion that California must be requiring far greater investments in environmental protection systems relative to neighboring states. Table 6-9 should either include far more supporting reference information or be deleted.

Please feel free to call me at (619) 295-2072 or e-mail at bpowers@powersengineering.com if you have any questions about this comment letter on the draft REIS. Thank you again for this opportunity to comment.

Best regards,

Bill Powers, P.E.

cc: David Rohy/SDREO
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Michael Shames/UCAN
Al Sweedler/SDSU
Rick van Schoick/SCERP
Frank Mannen/City of Carlsbad
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Willie Gathers/City of Chula Vista
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Albert Huang/EHC
Laura Hunter/EHC
Melanie McCuthan/EHC
Jan Cortez/American Lung Association
Susanna Concha-Garcia/American Lung Association
Dan Perkins/Sierra Club
Dave Roberts/Seawest
Bernard Raemy/CalEnergy
Martin Learn/Home Energy Systems

Response to the 2030 Regional Energy Infrastructure Study
By Ken Smokoska Air Quality Chair

"The Sierra Club reaffirms its urgent call for the United States to move to a clean economy, greater conservation and the use of renewable sources of energy."

The 2030 Energy Study provides a very superficial plan of action to implement renewable sources of energy. We find the sections 5.5 to 5.15 deficient in addressing options to implement renewable energy technologies for the San Diego Region. More attention was given to 5.16 Disadvantages of DG to the San Diego Region. The only disadvantage is inaction that will lead to a greater dependency on foreign oil interests and out of state power companies.

4.5 Electricity Transmission

We disagree with the conclusions that additional out of area transmission lines are needed. We feel the study is flawed in the potential for renewable energy total megawatts for the region. In addition to generating electricity from substandard power plants in Mexico. Our regional air quality will be severely impacted if we generate additional electricity from Mexico.

5.5.4 Photovoltaics

In the fall of 2001 74% of the voters in the City of San Francisco voted "yes" to issue revenue bonds in the amount of over $100,000,000 for the purchase and installation of energy efficiency, wind and photovoltaics. I was in San Francisco on November 21, 2002 for the dedication of the solar roof for Moscone convention center. Why not San Diego? The report should have outlined a plan of action for the region due to the attractive economics and clean technology. We suggest a Solar contest with the City of San Francisco, Major Willie Brown has challenged us, are we up to the challenge?

5.6 Fuel Cells

This study gave very little consideration to this technology.

- With the U.S. Navy testing up to (9) 5.[illegible] W Plug Power fuel cells, close attention

participating in the Regional Energy Infrastructure Study, a major conflict of interest is apparent. Installation of fuel cells would negatively impact Sempra's current investments in power plants.

- Stuart Energy Systems Corporation, www.stuartenergy.com. This company is a prominent member of the prestigious California Fuel Cell Partnership (CaFCP). They were recently successful in signing a $600 million letter of intent with Cheung Kong Infrastructure holdings (CKI) and joint venture to develop a hydrogen fuel infrastructure throughout South and East Asia and Australasia. CKI anticipates minimum purchases of 2,750 hydrogen-generating systems of Stuart Energy. Stuart's hydrogen-generating electrolysis units are designed to run on household current and tap water.

In closing we encourage full support to feasibility study funding to provide a blueprint for clean renewable technologies for the future.

Sincerely.

Kenneth Smokoska
Sierra Club, San Diego Chapter
Air Quality Chair